Liberty Island Conservation Bank

Preliminary Bank Proposal

WILDLANDS, INC.
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Bank Contacts

Bank applicant and landowner:

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Bank Purpose and Need

The proposed Liberty Island Conservation Bank would provide mitigation and conservation credits for the following species listed under the Federal Endangered Species Act (ESA):

- Delta Smelt: Sacramento-San Joaquin Delta – Threatened
- Giant Garter Snake – Threatened
- Chinook Salmon:
    1. Sacramento River Winter Run – Endangered
    2. Central Valley Spring-run – Threatened
    3. Central Valley Fall and Late Fall-run – Species of Concern
- Steelhead: California Central Valley – Threatened
- Green Sturgeon – Threatened

Location

Wildlands, Inc. (Wildlands) and the Trust for Public Lands (TPL) have rights to approximately 1000 acres of southern Yolo Bypass property in Yolo County, California. The property is located on the north end of Liberty Island roughly five miles west of the city of Courtland and 10 miles north of the City of Rio Vista in the southern Yolo Bypass and legal Delta (Figures 1 and 2). Specifically, the property is identified as being within the original island's Tract # 13, or Kerry property, and portions of the adjacent Trust for Public Land (Tract #15) and RD 2093 (Tract #6) properties. A description and photos of the property are included in Attachment A. A preliminary title report is attached as Attachment B.

Background

Wildlands and TPL propose to develop a conservation bank, identified as the Liberty Island Conservation Bank (Proposed Bank), on the above properties, representing approximately 1000 acres of the northern end of Liberty Island. The Proposed Bank site, located in rural Yolo County within the southern Yolo Bypass, has historically been used for agricultural production. Many of the surrounding properties both inside and outside the Bypass continue in agricultural production. Until a decade ago the entire 4760-acre island was in agricultural production, but after the private levees failed in 1998, the island was breached and flooded. The Federal government purchased all but 400 acres at the northeast end of the island in 1999. The funds were originally granted to U.S. Fish and Wildlife Service by the CALFED Bay-Delta Program and were slated for lands to be included in the proposed North Delta National Wildlife Refuge. No decision or funding

has occurred on the refuge plan. Title of the CALFED-purchased lands is held by TPL. The site and its adjacent tidal sloughs account for over 5,000 acres of the lower Yolo Bypass. Over 50% of the proposed bank site has already converted to permanent wetlands, after the levees failed allowing tidal exchange onto much of the island. Only the extreme northern end and levees, which constitute a major portion of the proposed bank, are not permanent wetlands.

The vision for restoration of Liberty Island has been to preserve and restore its riparian corridor and wetland habitats to benefit Chinook salmon, delta smelt, Sacramento splittail, water-associated birds (including neotropical migrants), and other at-risk species. "*Future restoration plans for Liberty Island are envisioned to be passive restoration approaches that would allow wetland and riparian vegetation to establish naturally. Restoration may also include creating additional breaches in the levees, filling agricultural water delivery and drainage ditches, leveling an existing road bisecting the property, and excavating meandering sloughs to improve habitat quality and native fish access and to prevent fish stranding. Liberty Island already supports significant existing wildlife and has outstanding potential for restoration, floodplain management, and endangered species recovery.*"[1] Monitoring funded by CALFED grants began in 2002 and continues today.

The Reclamation Board has a flood easement for Liberty Island and oversees the Yolo Bypass to ensure the capacity of the Central Valley Federal Flood Control Project. The Board is concerned that growth of substantial amounts of riparian vegetation could impact the flow capacity of the Yolo Bypass; the height of Liberty Island levees could hinder floodwater passing through the Bypass, or the possible effects of changes to Liberty Island that could stress the Project levees on the east and west sides of the Bypass adjacent to Liberty Island. The Board staff has visited Liberty Island and has yet to observe any evidence of substantive vegetation growth, impacts to the flood capacity of the Yolo Bypass, or levee deterioration that would necessitate action at this time.

Site Description

A decade ago Liberty Island was a 10-square-mile leveed island in agricultural production. It its heyday, the island had paved roads, power and telephone lines, homes, farm buildings, and even a school. The island's private levees failed in the 1997 flood and were not recovered, leaving all but the upper 1000 acres and their adjacent levees permanently flooded. These upper acres encompass the proposed bank as these acres can be preserved, protected, and restored for habitat. The lower nearly 4000 acres will remain at least for the near future predominantly open water and subtidal, as tidal elevations are too great for marsh or riparian habitat.

The Proposed Bank site is located at the higher elevation northern end of Liberty Island at or above the mean-low-tide level. Elevations range from near zero (sea level) in marsh areas to near +20 ft on portions of levees. Much of the site would be considered intertidal marsh, flooding at high tides and draining at low tides. Most of the remainder is supra-tidal, occasionally flooding at very high tides or during floods. The site includes approximately 5 miles of the original island levees, which are generally in good shape

[1] http://www.delta.dfg.ca.gov/jfmp/libertyisland.asp

except for several substantial erosion areas including one breach of approximately 100 ft in length and numerous small erosion areas.

The site includes several properties representing parcels, ownership, as well as different habitats. The Proposed Bank Development includes phases that also correspond to these properties.

Kerry Property: The most northern property is the Kerry Property (Tract #13), a private parcel controlled by Wildlands. It has the highest elevation on the island other than the levees. This 184-acre property is primarily supra-tidal, only flooding occasionally during floods. Most of the property is "old-field" (fallow). About a third of this property is upland habitat above the 8-ft elevation. The uplands include the east-side levee. The north- and west-side levees are part of the RD 2093 Tract #6 property (described below). The remainder of the property is one to several feet lower and subject to ponding during the winter. A small interior island levee keeps the tide from entering the southern end of this property. Only the highest portions of the main east levee does not flood during maximum Yolo Bypass floods.

TPL Property: The remainder of the interior island portion of the Proposed Bank is the TPL Property (Tract #15) immediately to the south and west of the Kerry Property. It has the next highest average elevation on the island. This 600-acre parcel is about 20% subtidal channel and ponds, 60% intertidal channels and marsh, and 20% supratidal "old-field" seasonal wetland and upland habitat.

RD 2093: The RD 2093 (Tract #6) property includes most of the exterior slough and levee corridor around the site perimeter except the east levee-slough corridor. The property is approximately 60 acres representing a 12,000 ft by 200 ft linear levee corridor stretching from the southwest corner of the site to the northeast corner of the site. The levee and its road are in various states of disrepair with at one large 100-ft-wide breach and several smaller breaches. Riparian SRA habitat occurs to variable extent along both sides of the levee. About a third of the levee length is extensively rocked on the outer-slough side.

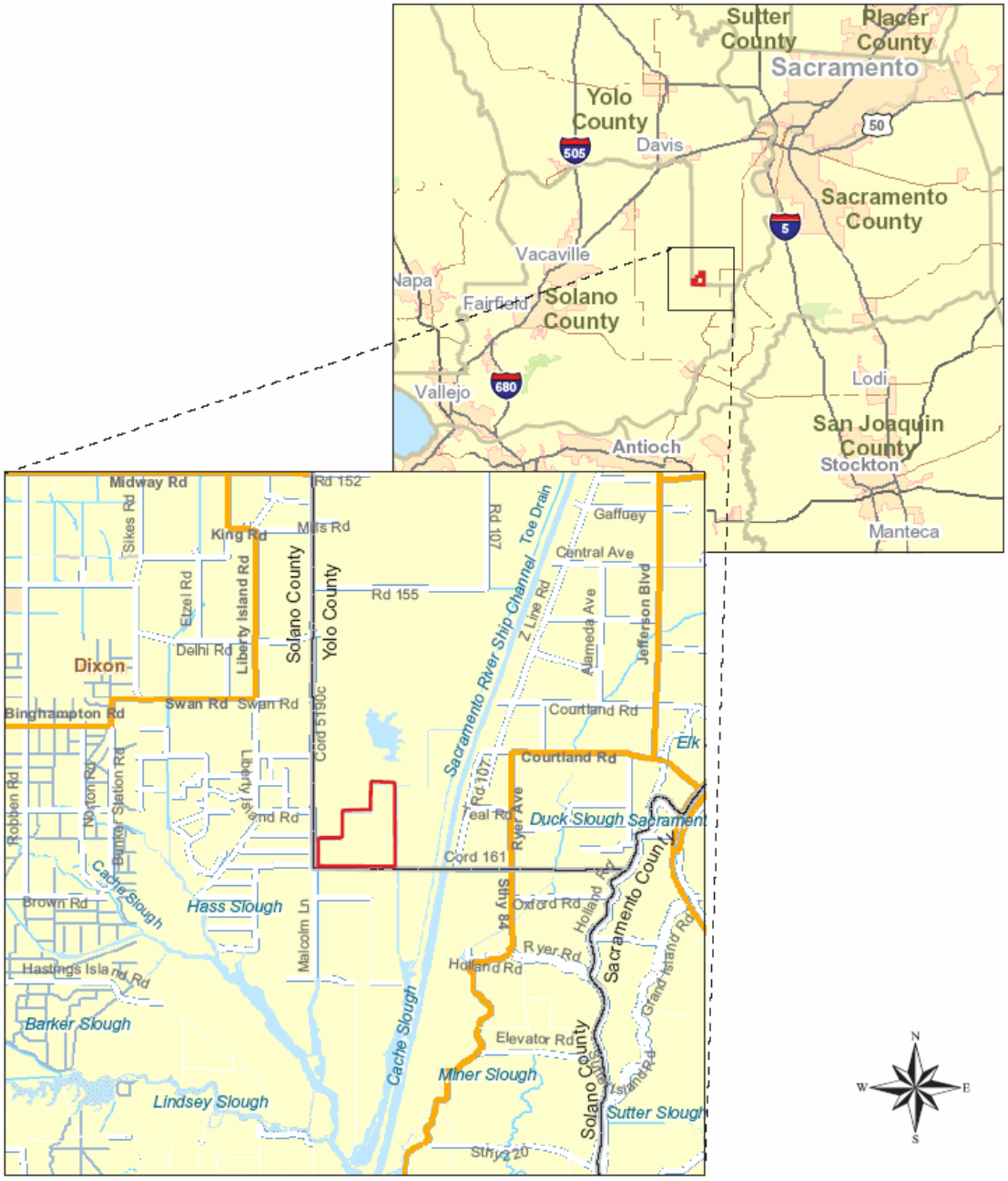

Figure 1. General location of proposed Liberty Island Conservation Bank.

The site is located within the critical habitat designated for listed Chinook salmon and delta smelt. The presence of habitat suitable for salmon, delta smelt, other Delta native fishes, and giant garter snakes, as well as existing water ways immediately adjacent to the Proposed Bank site (i.e. the Yolo Bypass and Shag Slough – Liberty Cut – Prospect Slough complex), demonstrates connectivity to movement corridors for these species. The potential occurrence of these species on this and neighboring properties and tidal sloughs, combined with the Proposed Bank site's connectivity to movement corridors,

supports the premise that these species will utilize or depend on the aquatic and upland habitats once established by the Proposed Bank.

Further description of the site along with aerial and other photos is presented in Attachment A.

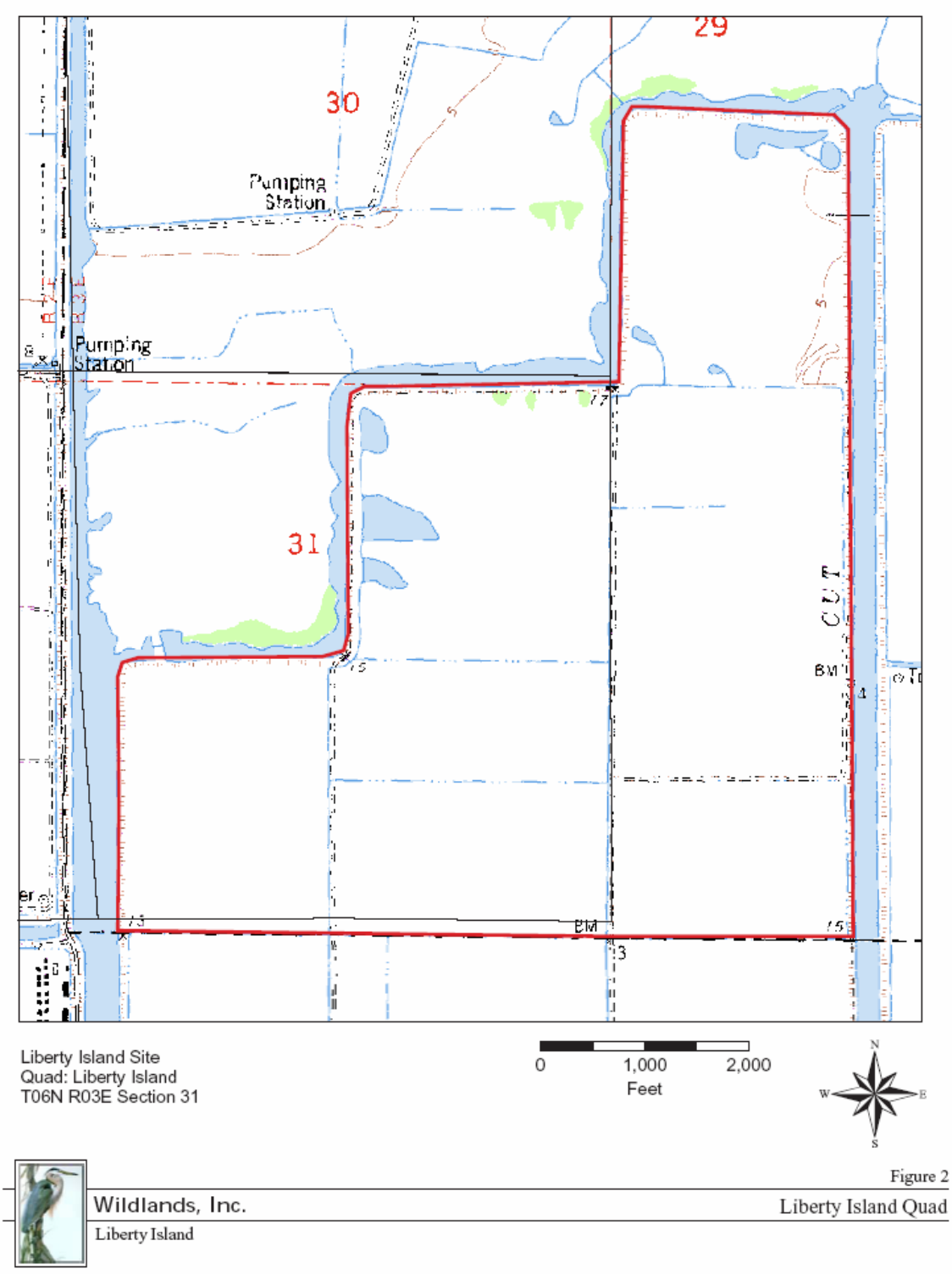

Figure 2. 1000-acre Property controlled by partners within upper Liberty Island.

Liberty Island Conceptual Bank Proposal

Project Proposal

Wildlands/TPL propose to develop a multi-phased conservation bank as compensatory off-site mitigation for impacts to Chinook salmon (*Oncorhynchus tshawytscha*), delta smelt (*Hypomesus transpacificus*), and Giant Garter Snake (GGS) (*Thamnophis gigas*) habitat. The overall goal of the Proposed Bank is to preserve, create, restore, protect, and manage 400+ acres of habitat features suitable for the listed GGS, delta smelt, and salmon, while maintaining and protecting 500+ acres of existing high quality habitat. The site will include emergent marsh, tidal sloughs and channels, and riparian shorelines suitable for all three species. For GGS there will be upland basking sites and refugia that do not flood because of their higher elevation, as well as aquatic habitat suitable to support year round occurrence of the species. For delta smelt there will be tidal channels and marsh with shaded riverine aquatic habitat (SRA) and large woody materials (LWM) suitable for spawning and early rearing. For Chinook salmon there will be extensive shallow tidal marsh/slough habitats suitable for winter fry and fingerling rearing. The primary objective of the Proposed Bank will be to create a balanced habitat mosaic consisting of open water and channels, perennial marsh, and upland habitat. These habitats will be suitable for year round use as GGS basking areas and hibernacula. Though being part of the Yolo Bypass that floods in most years, the higher ground on and adjacent to portions of the site's levees have never flooded (they are 10+ ft above tide level and up to 2.5 ft above the 100-year flood level) will provide refuge for GGS during most flood conditions. The mechanisms for creating and maintaining these habitat values will be described in a Habitat Development Plan, which will be reviewed and approved by the Services prior to implementation.

The conservation values of the Proposed Bank will be protected in perpetuity by placing the site under a conservation easement. Perpetual stewardship of the Proposed Bank will be financed by an endowment account dedicated to the monitoring, management, and maintenance of the Proposed Bank. Upon completion of the Proposed Bank, the property will be deeded to TPL to become part of a state-federal conservation area.

Being within the Yolo Bypass the Proposed Bank is being designed to improve flood conveyance. The east-west directional levees (Figure 2) will be lowered to reduce their impedance of flood flows in this relatively narrow reach of the Bypass. North-south levees will be retained to minimize wave-wind fetch forces that cause erosion on the main Bypass levees. Over two miles of these levees are presently rocked and the plan includes removal of the rock to provide a stressor removal element of the proposed bank.

Wildlands and TPL will work closely with the FWS, NMFS, DFG, Reclamation Board, DWR, Corps, and the Yolo Bypass Working Group in developing specific designs for the Proposed Bank. Our intent is to develop the habitat features on these properties consistent with existing plans for the lower Yolo Bypass.

Habitat Development Concepts: The primary function of the created habitat is to provide high quality habitat for Chinook salmon, delta smelt, and GGS, and to aid in the recovery of these species in a manner consistent with the US Fish and Wildlife Service

Giant Garter Snake Draft Recovery Plan, the Delta Native Fishes Recovery Plan, and the Winter-Run and Spring-Run Chinook Salmon Recovery Plan goals. The primary function of the habitat will be achieved by excavating and depositing soils and establishing an emergent marsh, SRA habitat, tidal shallow water, tidal channels, and upland habitat complex that is managed and maintained specifically to provide native natural Delta habitat conditions for these species.

Design of the shallow water, marsh, riparian, and upland habitats will focus on features and water regimes that are known to be biologically important to these species. The upland grassland habitat will be integrated with the riparian, wetland, and aquatic habitats to provide sites for basking, daily refuge, and winter retreat for GGS, spawning and rearing of delta smelt, and winter rearing for juvenile salmon. Upland and riparian habitats will be situated in close proximity to the wetland and aquatic habitats in order to ensure maximum use by and benefits to these species.

Water will be supplied to the Proposed Bank site from natural tidal action from sloughs of the Yolo Bypass. Water levels will be controlled by natural tidal inundation of marsh and slough habitat via numerous connections to tidal sloughs. In some years floodwaters of the Yolo Bypass will seasonally inundate a greater proportion of levees and uplands than background tidal action as occurred historically in the Delta.

The basic design concept will be to rehabilitate SRA habitat along the levee shorelines of tidal sloughs, breach the levee in strategic locations, and create tidal channels within the island. Fallow fields will be returned to seasonal and permanent wetland marsh and tidal slough habitats. A mosaic of interior tidal channels will be created to connect interior island marshes with adjacent tidal channels of Shag and Liberty Island Sloughs. Improvements in flood conveyance by reducing the height of east-west levees may allow riparian habitat development.

The Proposed Bank would provide a significant amount of information on the benefits of tidal wetland restoration within the Delta. Large scale restoration projects in the Delta that involve large areas of tidal wetland and riparian habitats including Liberty Island have yet to be implemented. The Proposed Bank will include long-term monitoring to assess the benefits of such restoration.

Phase 1: The first phase of the proposed bank is preservation and restoration of habitat on the 184-acre Kerry Property. This will involve conversion of the fallow field and east levee to a combination of uplands and tidal channel and marsh habitats. Nearly 3,000 ft of the east levee will also be restored to a combination of upland, riparian, and SRA habitats along Liberty Slough. The internal levee on the southern end of the property will be removed and tidal channels constructed to link up with tidal channels on the adjacent property to the south. Portions of the fallow field will be excavated to produce tidal marsh and channel habitats. Excavated soils will be deposited on portions of the levee and existing higher ground to create and enhance upland habitat for GGS.

Phase 2: The second phase of the proposed bank is preservation and restoration of approximately 640 acres of the TPL property south and west of the Kerry Property. The restoration will be similar to that of Phase 1, but in different amounts.

Phase 3: The third phase planned is restoration of habitats on the 60 acres of levee of Reclamation District 2093. Restoration will include cutting down the east-west sections to improve flood conveyance with multiple channel openings to the interior restorations of Phases 1 and 2, and creation of a shallow riparian bench along Liberty and Shag sloughs. North-south levee sections will be restored to provide SRA along the sloughs and riparian-upland habitats on levee crests. SRA may also be created on inside-levee edge of tidal channels constructed in Phases 1 and 2.

Assurances

The Proposed Bank will provide biological and financial assurances specific to the site and subject to agency review prior to becoming approved and established as a mitigation/conservation bank. The Proposed Bank will have an endowment exclusive to the management of the Proposed Bank in perpetuity. Furthermore, the Proposed Bank will be entered into a Conservation Easement held by an agency or approved non-profit entity covering the Proposed Bank site in perpetuity prior to bank establishment. Various project development construction bonds will be established to assure the project development takes place as prescribed in conservation bank entitlements.

Biological Resources Report

The CALFED Bay-Delta Program has been conducting studies of Liberty Island since 1999. To date CALFED has spent $2,700,000 on planning and monitoring at Liberty Island to go along with the original $8,900,000 purchase cost. Most recently CALFED commenced the BREACH III Project with Liberty Island as the focus.

1999-2006 Studies (CALFED Science Conference 2006 Abstracts): *The adult fish survey native Chinook salmon, Sacramento pikeminnow, Sacramento sucker, splittail, blackfish, and white sturgeon common in the Bypass especially in the high water winter flood periods. The tidally influenced freshwater marshes provide suitable habitat for a variety of fish species. Much of this habitat type has been removed or altered by human activities in the Sacramento-San Joaquin River Delta over the past century. However, as a result of a massive flooding event in 1997, the levees of Liberty Island, an artificial agricultural island in the lower Yolo Bypass, breached and the interior of the island flooded. Portions of the island have since returned to a tidally influenced freshwater marsh while others remain submerged under all tidal conditions. In three years of sampling using multiple gear types, we collected 40 species of fish: 18 natives and 22 non-natives. Numerical dominance by natives versus non-natives varied by life stage: native larvae were more abundant than non-natives, whereas non-native juveniles and adults were more abundant than natives. No clear spatial patterns in native larval abundance existed, although non-natives were more abundant in the northern portion of the island. There were no clear patterns in native juveniles, yet non-natives were more abundant on the west side of the*

island. Both native and non-native adults were more abundant on the east side of the island. Intra-annual patterns were similar for larvae and juveniles: natives were more abundant earlier (January-June) than non-natives (May-September). Adult natives were most abundant in fall/winter, while non-natives were most abundant in spring/summer. These results indicate that fish clearly utilize habitat in Liberty Island, and that spatial and temporal preferences among life stages and between natives and non-natives are present. These findings will be valuable to CALFED restoration efforts because they document fish use of a tidal marsh habitat undergoing passive restoration…. The northern region has varied habitats and depositional sediment; the southern region has expansive open-water and clay soils. Proposed activities include wetland and riparian habitat restoration and levee modification to increase water conveyance through the Yolo Bypass.

A two-year study was conducted to provide pre-project, baseline information on the benthic invertebrate community, and to develop sampling methods. We tested variations of two gears - a sediment corer to collect benthos and an artificial substrate to collect epibenthos. Preliminary results indicate the northern regions had higher benthic species diversity and abundance than the southern regions.

Liberty Island, inundated since 1997, encompasses 5,200 acres and is located in the northern Sacramento-San Joaquin Delta at the southern outlet of the Yolo Bypass. Through a multi-agency effort, we continue to monitor the immense changes that are transforming this once large agricultural area into a diverse habitat of over 900 acres of freshwater tidal marsh and emerging marsh, 60 acres of herbaceous wetlands and almost 20 acres of riparian habitat, all through natural processes and without active restoration efforts. With a large portion of the island at mean sea level, and Liberty Island's topography of gently sloped fields and a system of irrigation canals and drainage ditches, conditions were created that have enabled natural processes to occur. The northern portion of the island has developed a diversity of habitats, tidal marsh, shallow-water mudflats, seasonally inundated wetlands and upland riparian. There is channel formation on deposited sediments, with emergent vegetation and tules on the mudflats. Native fish such as threespine stickleback, delta smelt and Chinook salmon utilize the freshwater tidal marsh as well as native birds and waterfowl. This marsh is highly productive and could be important to downstream estuarine production. Due to the location of Liberty Island, with no active restoration efforts undertaken and only through natural processes, large areas of tidal marsh, shallow-water mudflats, and upland riparian habitats have been created. Our continued monitoring of these processes will help us gain a clearer understanding of how to manipulate and assist these processes to create tidal marshes and other critical habitat in the Delta and Estuary.

The monitoring of the ecological processes occurring in Liberty Island and their relation to pre-existing topography and land use will greatly increase our success in selecting and initiating areas for tidal marsh habitat restoration. Understanding the processes that are occurring in the island will also assist in management decisions regarding flood control, increased conveyance, modifications to the topography to increase tidal marsh habitat, and protection of critical habitat for at risk species

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The northern region has varied habitats and depositional sediment; the southern region has expansive open-water and clay soils. Proposed activities include wetland and riparian habitat restoration and levee modification to increase water conveyance through the Yolo Bypass. A two-year study was conducted to provide pre-project, baseline information on the benthic invertebrate community, and to develop sampling methods. Invertebrate sampling occurred seasonally February 2004 through July 2005. The island was divided into five regions; and two to three regions were sampled per survey. Preliminary results indicate the northern regions had higher benthic species diversity and abundance than the southern regions. The southeast region had higher epibenthic species abundance but lower species richness than the southwest region. Epibenthos were not sampled in the north. Abundance and diversity was greatest summer and fall. Preliminary results indicate low productivity in the southern region, possibly indicating a need for restoration. Further investigation of epibenthos is recommended.

Liberty and Little Holland Islands at the base of the Bypass are net methyl mercury sinks.

March 2003 to February 2004 Juvenile Fish Trapping Survey (DWR):
At least 12 native fish species are common to the Yolo Bypass including Chinook salmon and delta smelt. White sturgeon, splittail, and steelhead have also been captured.

Species	Native	Non-Native
American shad		X
Black bullhead		X
Black crappie		X
Brown bullhead		X
Carp		X
Channel catfish		X
Chameleon goby		X
Chinook salmon	X	
Delta smelt	X	
Fathead minnow		X
Goldfish		X
Golden shiner		X
Hitch	X	
Largemouth bass		X
Bigscale longperch	X	
Mosquito fish		X
Inland silverside		X
Prickly sculpin	X	
Pacific staghorn sculpin	X	
Sacramento pikeminnow	X	
Sacramento sucker	X	
Sacramento blackfish	X	
Shimofuri goby		X
Striped bass		X
Threadfin shad		X
Tule perch	X	
Threespine stickleback	X	
Warmouth		X
Wakasagi		X
White catfish		X
White crappie		X
Yellowfin goby		X

Attachment A – Description of Proposed Liberty Island Conservation Bank

Liberty Island is centrally located at the lower end of the Yolo Bypass just west of the Port of Sacramento Deepwater Shipping Channel (Figure A-1) in the tidal Delta. The island is critical habitat of all Delta fish including salmon and delta smelt. It is also a prime spawning and rearing area for Sacramento splittail, a recently delisted, Federal special-status species.

The US Fish and Wildlife Service received a grant from CALFED to acquire 4,760 acre of Liberty Island in the Yolo Bypass in Yolo and Solano Counties. The grant funds were transferred to the Trust for Public Lands (TPL) who acquired the land in 1999 in fee title. The Corps of Engineers purchased Little Holland Tract (1640 acres) in 1999. The Wildlife Conservation Board purchased 12,000 acres to the north of the Liberty Island in 2002 to add to the State's Yolo Bypass Wildlife Area. The Bureau of Reclamation purchased the northeastern portion of Prospect Island, covering 1,228 acres in 1995. Most of the rest of the Prospect Island is owned by the Port of Sacramento (1,240 acres), with a 37 acre area at the southeast tip owned by Department of Fish and Game.

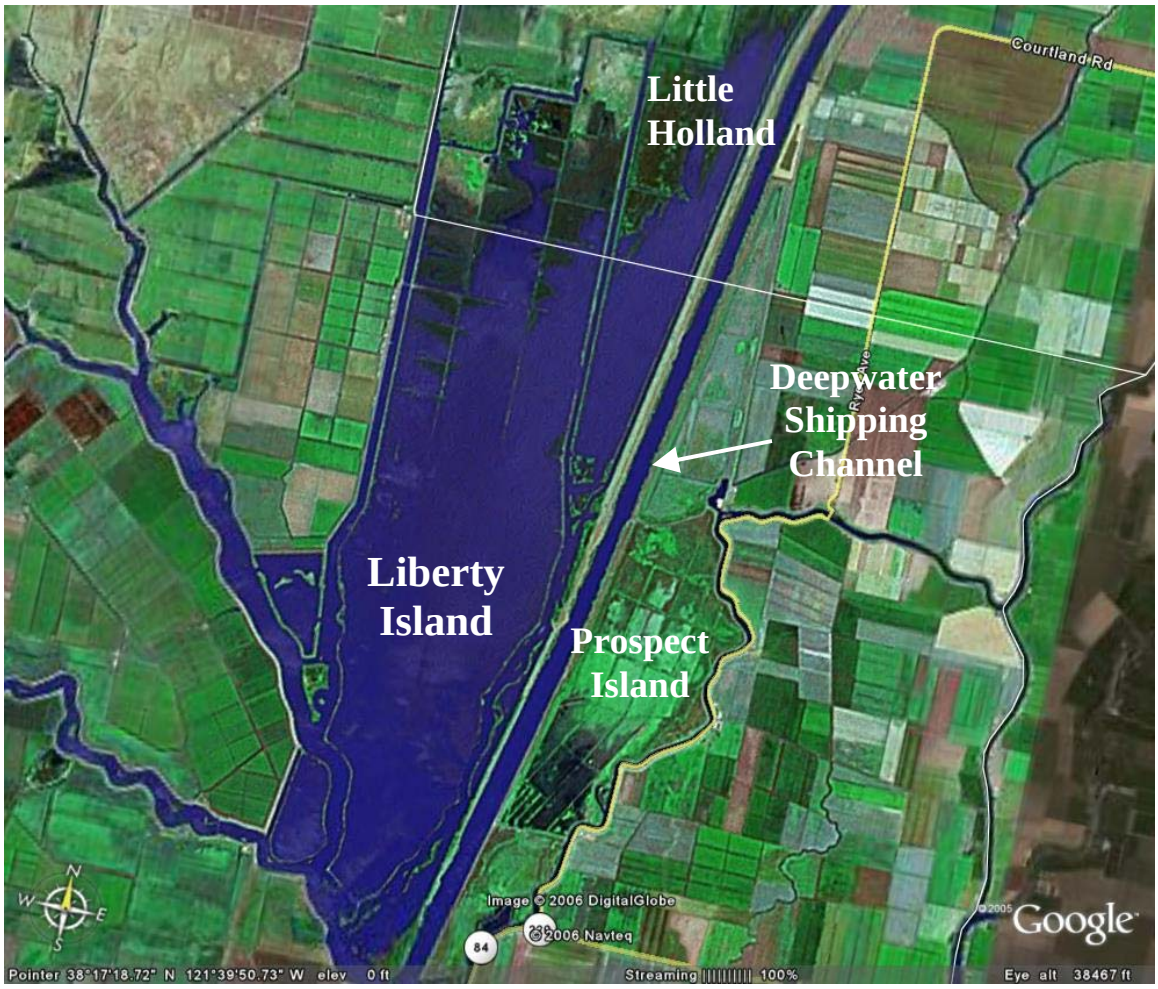

Figure A-1. General location of Liberty Island.

Together these lands were destined to become the Federal North Delta Wildlife Refuge, which has yet to be funded by Congress.

At the north end of Liberty Island are two small private properties in Yolo County portion of the island (Figure A-2). The upper 1000 acres of the TPL land and the West property have developed into a tidal marsh. Much of the Kerry property is too high to tidally flood and has remained fallow cropland/grassland with patches of wetland/riparian habitat (Figure A-3). The lower 3000 acres of the TPL lower island are permanently under water.

Figure A-2. Property ownership of upper Liberty Island.

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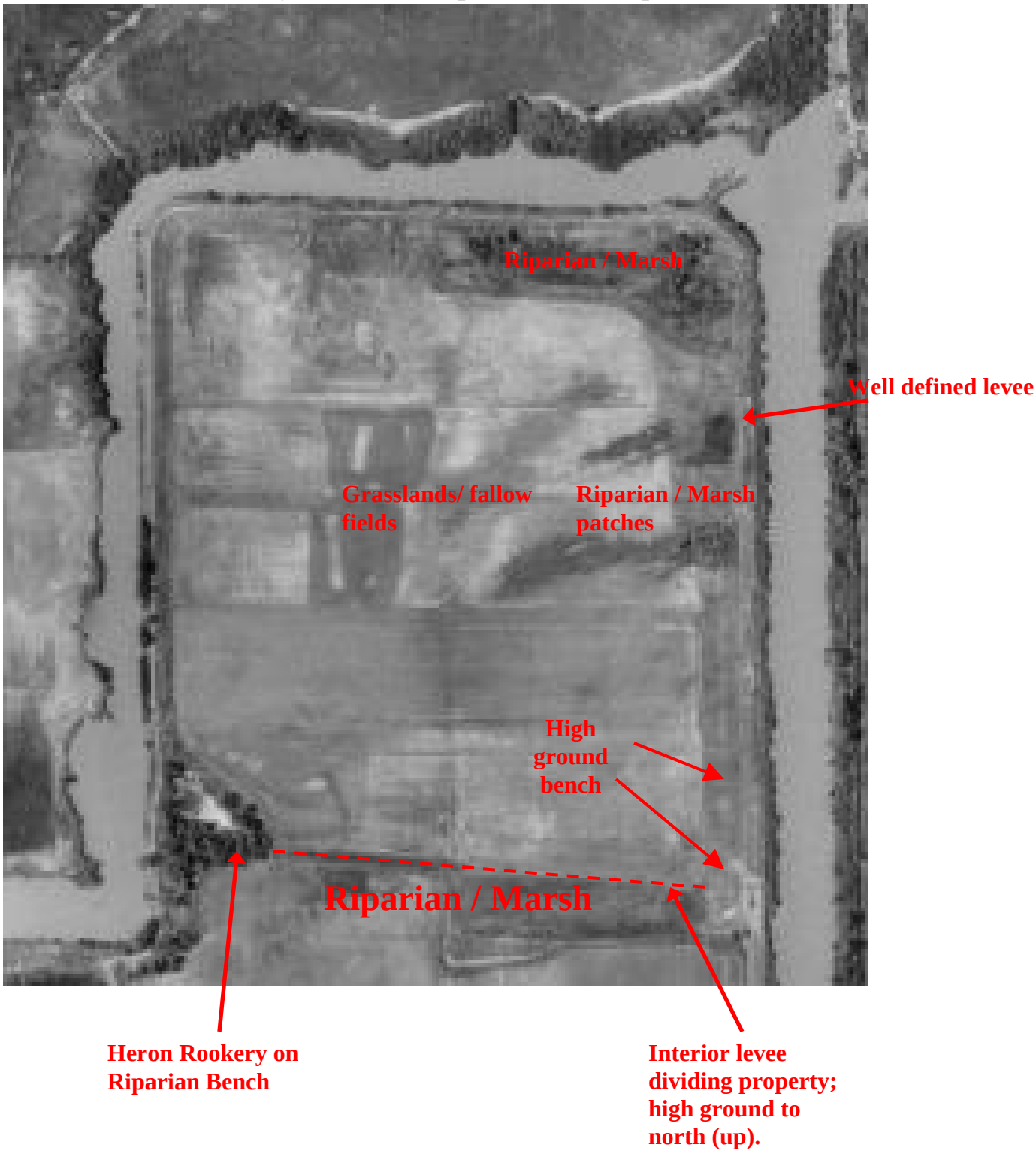

Figure A-3. Habitats on Kerry Property

Low area of levee road with non-native weeds.

TLP upper island marsh.

North tip of Kerry property standing on levee looking south onto riparian bench.

North Kerry levee road with Liberty Slough to right (north). Bypass flooding does not overtop higher portions of this levee as it is 15+ft in elevation MLLW. These east-west levee portions of the properties are a significant hindrance to flood conveyance through the lower Bypass.

Looking across the Kerry property from riparian bench toward west levee. South boundary at left has an existing small levee that would be removed. The high bench in the foreground and the higher north-south levees offer considerable potential for Giant Garter Snake refugia as this high ground does not flood.

Kerry east bench looking across fallow land at center of property.

West property next to east levee. Mustard weed on top of levee does not flood and thus would provide refugia for Giant Garter Snakes. Marsh is flooded in winter and spring as during this photo from spring 2006. This area is tidal marsh or seasonal wetland habitat under normal tidal water levels.

West property fallow field at north end during spring flooding. Mt Diablo in background. Tidal channels can be constructed through portions of the west property to provide fish habitat. Otherwise seasonal flooded wetlands such as this provide important spawning and early rearing habitat for some Delta fishes including Sacramento splittail.

Kerry property fallow field. This property is flooded during extreme flooding of the Yolo Bypass, but otherwise remains dry during non-flood periods. Tidal channels would be constructed throughout this property to provide year-round habitat for Delta native fishes and Giant Garter Snakes.

More Kerry property – much of this fallow field is yellow-star thistle and milkweed.

Heavy levee and road erosion at north end of TPL property. The irrigation ditch at left would be expanded upon to provide a network of tidal channels connected to existing tidal sloughs (e.g., Liberty and Shag sloughs).

More of West property from top of levee during spring 2006 flooding.

Heron rookery on Kerry property during spring 2006. Portions of the north-south levee and some benches do not flood and provide for upland habitats.

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Access to Liberty Island is from Liberty Island Road and bridge over Shag Slough. A levee road provides access to the north end of the island. A breach has formed on the north end that presently blocks road access to the Kerry and West properties. This breach would require partial filling and culvert for construction and then returned to existing function. Additional breaching and tidal channels would be constructed to add tidal slough habitat and greater flow conveyance at the north end of these properties.


Riparian
SRA along
Shag or
Liberty
Slough

Attachment B - Preliminary Title Report and Title Restrictions